BeSafe: IoT Based Safety Band

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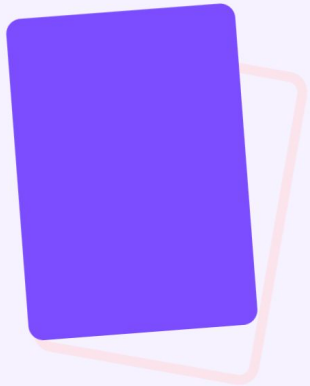

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University of Mumbai

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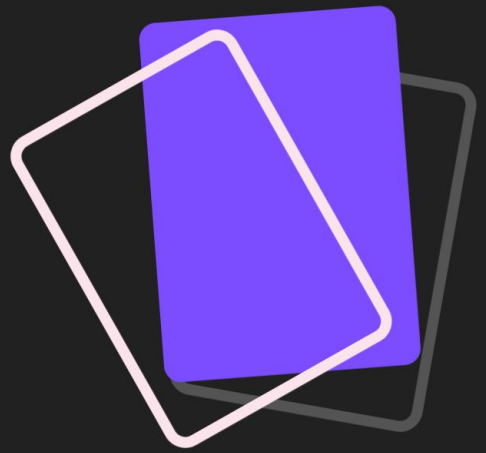

Introduction

- Our approach.
- What we have implemented:
  - An IoT Safety Band.
  - A Flutter Application.
  - Logs/Records stored in Cloud.

Abstract

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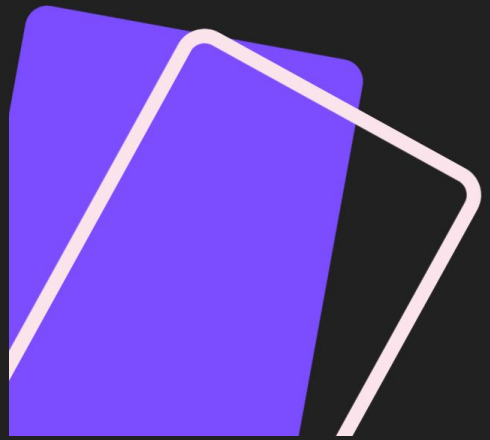
- Women Safety has become a major issue.
- To help everyone when they need assistance.
- What we can do about it.

Objectives

- To develop a cross-platform application.
- To send a google map url link.
- To store data in cloud.
- To analyze data for data visualization.



Literature Reviews

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Raspberry Pi Based Smart Wearable Device for Women Safety using GPS and GSM Technology, (2020).

by Dhiraj Sunehra, SMIEEE, V. Sai Sreshta, V. Shashank, B. Uday Kumar Goud.

Methodology

- For safety and security it sends a buzzer alert to people who are close to the user.
- It locates the user using the GPS transmits via SMS to the emergency contact and police using the GSM.
- It interfaces with a USBWeb Camera and sends an e-mail.

Learnings

- Instead of using raspberry pi, we will use arduino nano which is smaller in size.
- And creating own cross platform application with all the features in it.

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WOMEN'S SAFETY SYSTEM BY VOICE RECOGNITION, (2020).

by V. Mishra, N. Shivankar, S. Gadpayle, S. Shinde, M. A. Khan, and S. Zunke.

Methodology

- The proposed system uses SQL for the database, voice recorder, and GPS for getting coordinates.
- The application is activated when the user shakes the phone, uses voice, or presses the button present in it. It sends the latitude and longitude coordinates to the contacts via SMS and records audio for proof.

Learnings

- Instead of sending gps we could send google map url link.
- Android security doesn't allow to continuously listen to voice.

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Safety Solution for Women Using Smart Band and CWS App, (2020).
by A. Z. M. Tahmidul Kabir, Al Mamun Mizan, Tasnuva Tasneem.

Methodology

- The proposed methodology is an Android app and an Internet of Things (IoT) device to make women's movement safer.
- The app also provides the user with the location of the nearest safe zone. The app can transmit a notification to the nearest police station and volunteer support.

Learnings

- To show directions for nearby safe locations like Hospitals, Police Stations or Crowded areas.
- To store location data in cloud for data analysis.

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Problem Definition

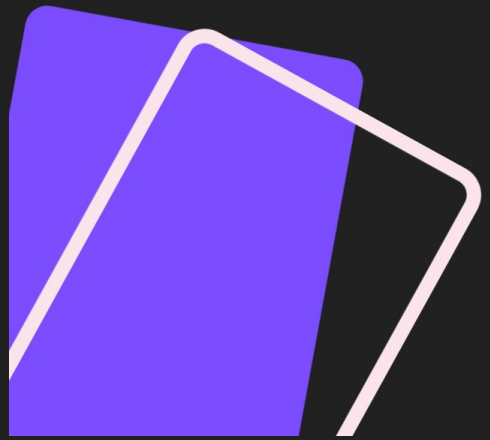
- Problem Identified:
  - The free movement of women are being hampered by abuse.
  - The person who is in unmovable situation due to an accident or alone who needs help.
- Solution Proposed:
  - We proposed to make an app that helps the women to reach her family with single a click.
  - We are also planning to create a system so, a person can contact the concerned authority by a single click by sending his/her location.

Scope

- Safety band cannot only be used by women but also can be used by men.
- The victim can send the location without the attacker having any idea about it.
- This band can be used by anyone to contact the immediate or extended family and friends in case of emergency.

Technology Stack

- **Hardware:**
  - Arduino nano
  - GSM SIM800L
  - GPS
  - Push Button
  - Buzzer
- **Software:**
  - Firebase
  - Flutter
  - Android studio, Arduino IDE



Proposed System

Flow of App

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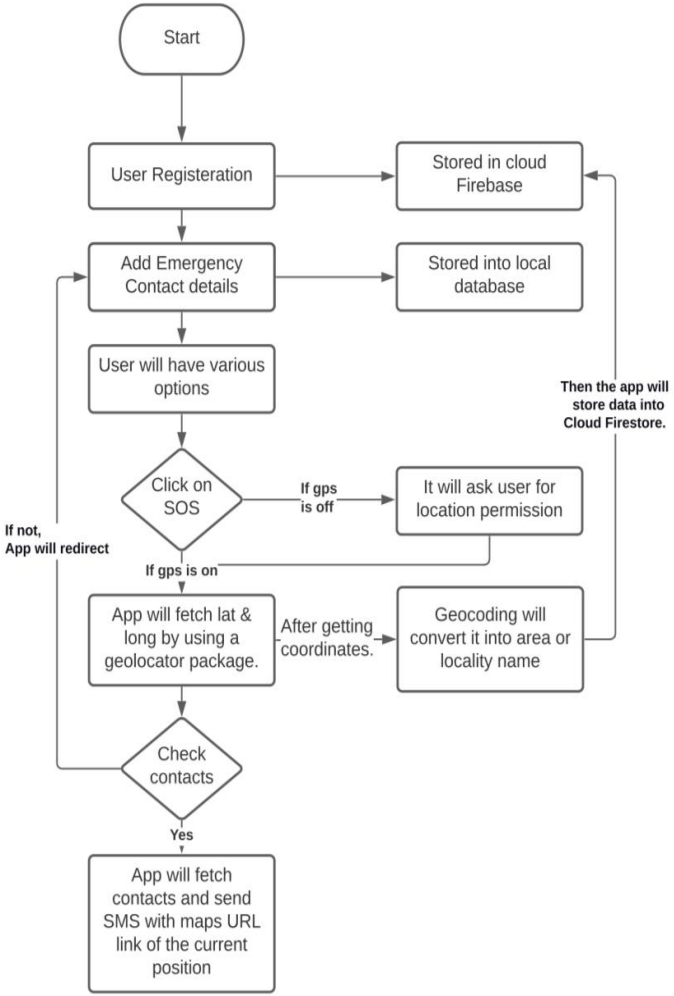

Flow of Band

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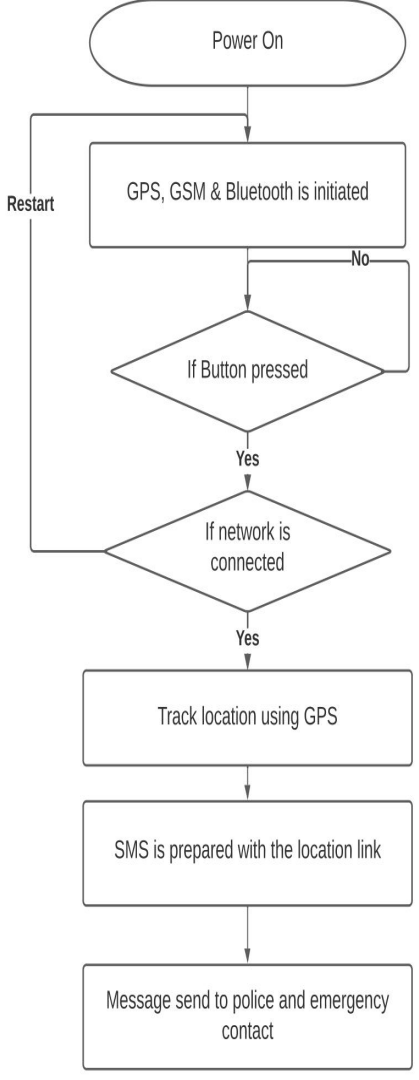

Flow of App and Band

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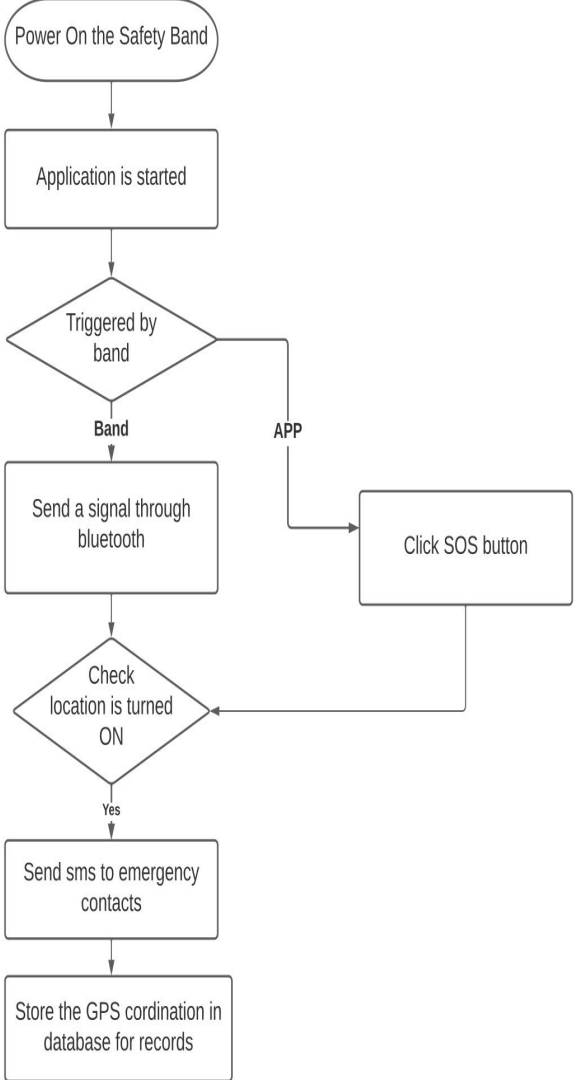

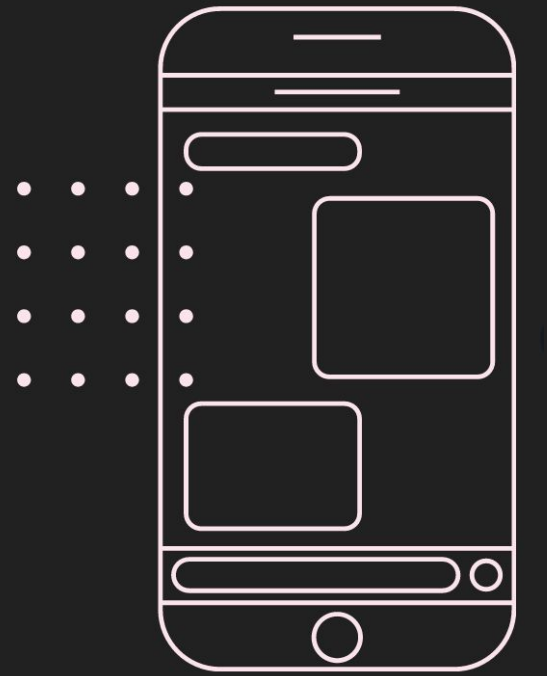

Results

Software Implementation

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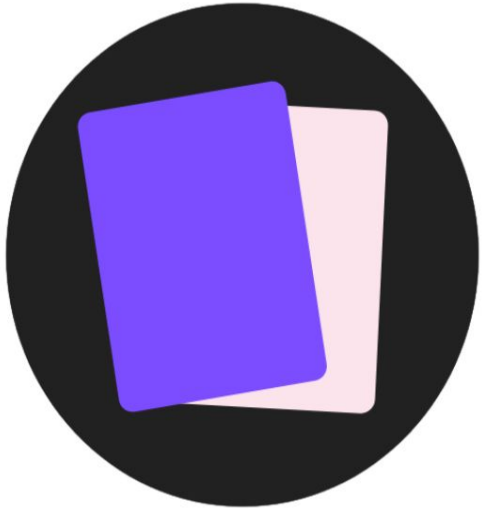

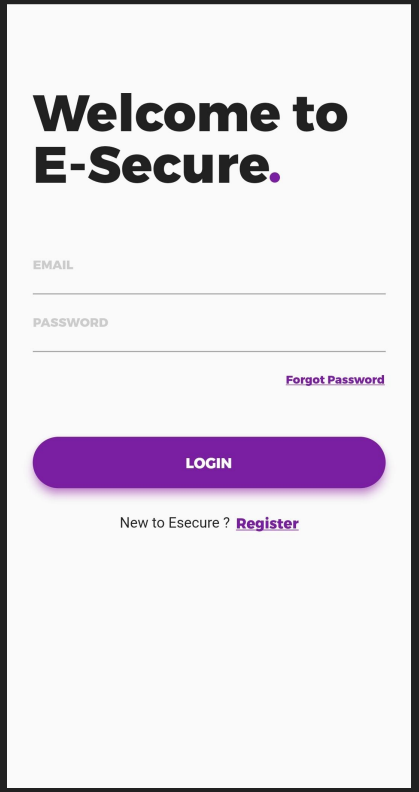
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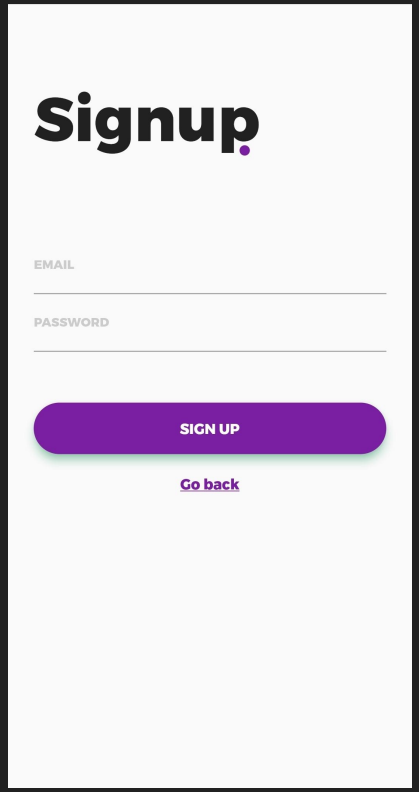
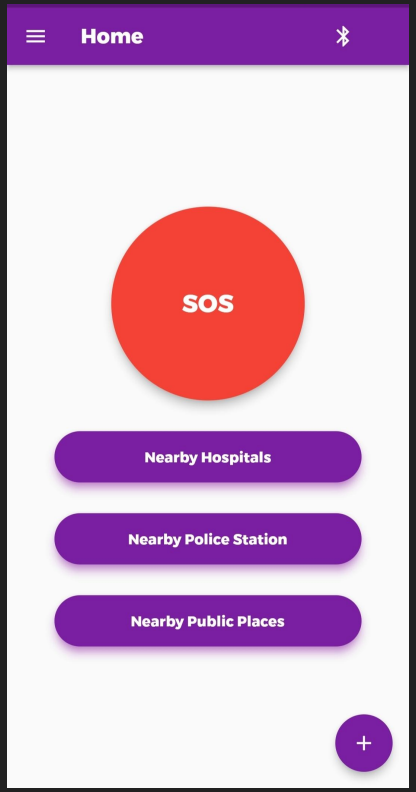
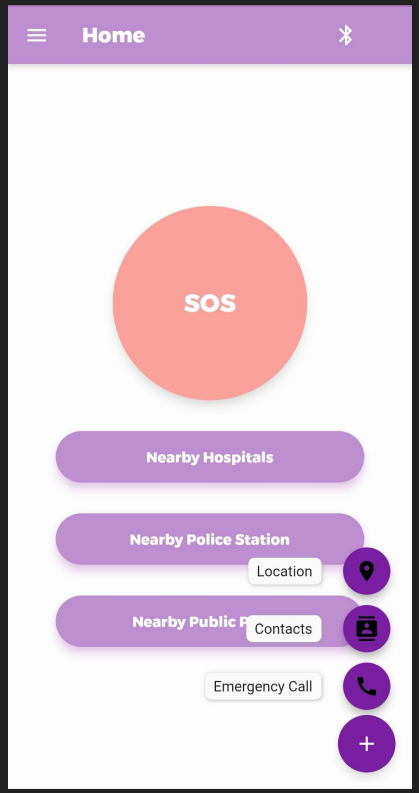
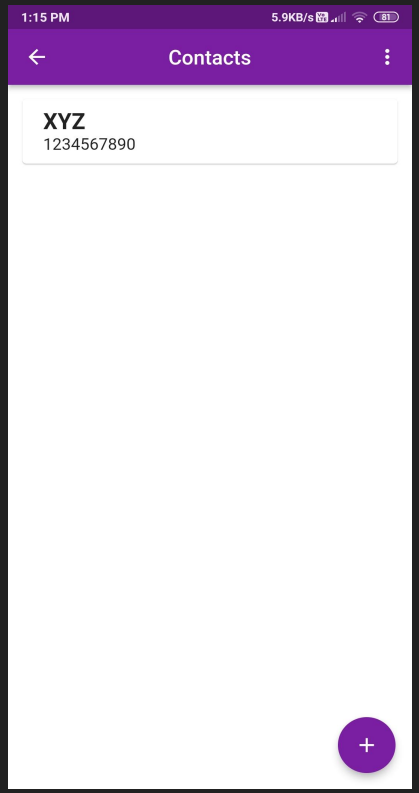
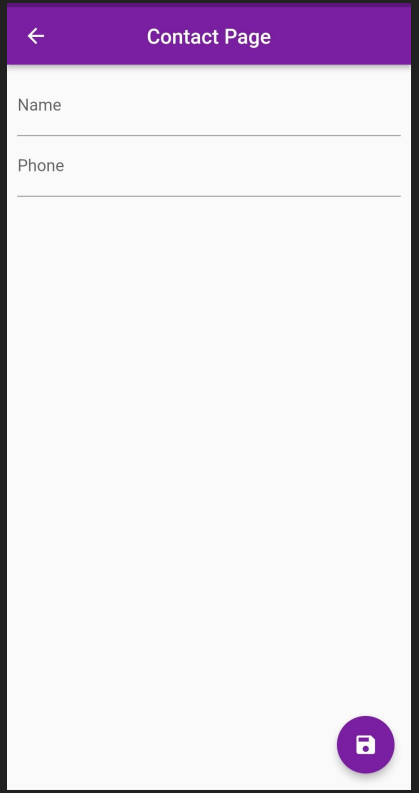
EMAIL
PASSWORD
Forgot Password
LOGIN
New to Esecure ? Register

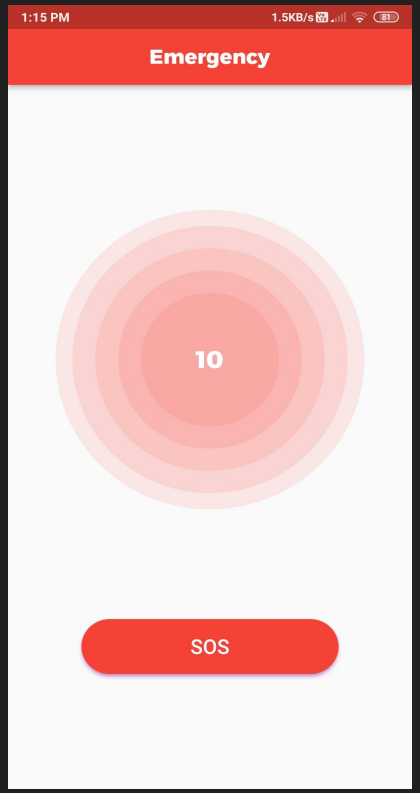

Signup
EMAIL
PASSWORD
SIGN UP
Go back

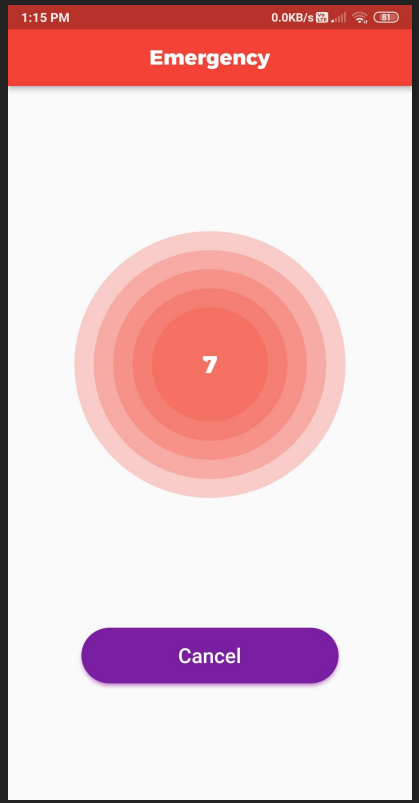

Home
SOS
Nearby Hospitals
Nearby Police Station
Nearby Public Places

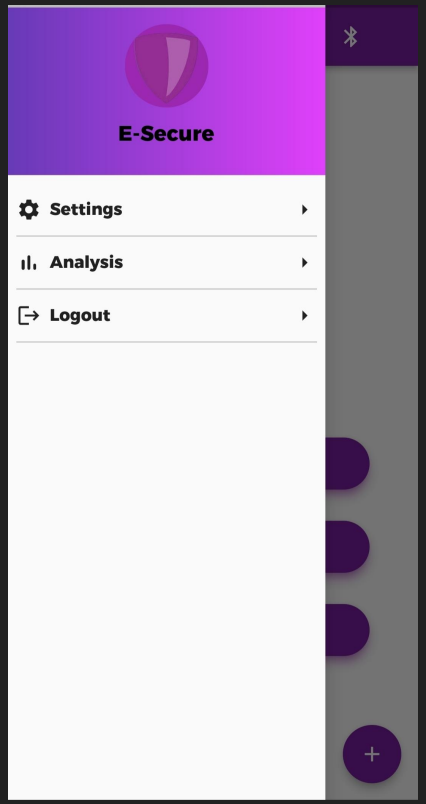

Home
SOS
Nearby Hospitals
Nearby Police Station
Location
Nearby Public P
Contacts
Emergency Call

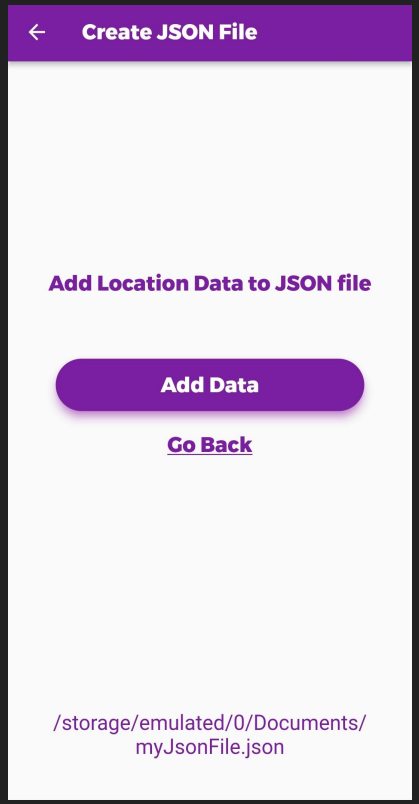

1:15 PM
5.9KB/s
Contacts
XYZ
1234567890


Contact Page
Name
Phone


1:15 PM
1.5KB/s
Emergency
10
SOS


1:15 PM
0.0KB/s
Emergency
7
Cancel


E-Secure
Settings
Analysis
Logout


Create JSON File
Add Location Data to JSON file
Add Data
Go Back
/storage/emulated/0/Documents/
myJsonFile.json

Hardware Implementation

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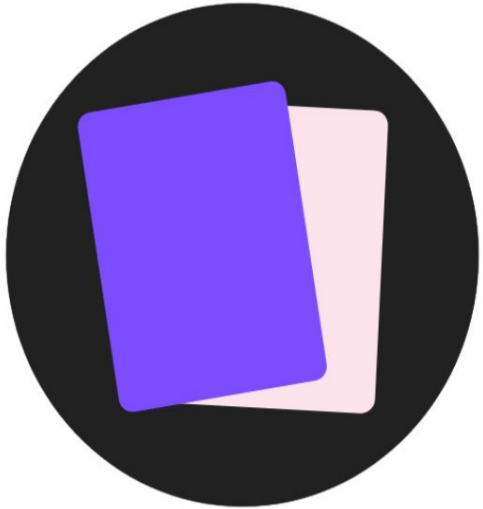

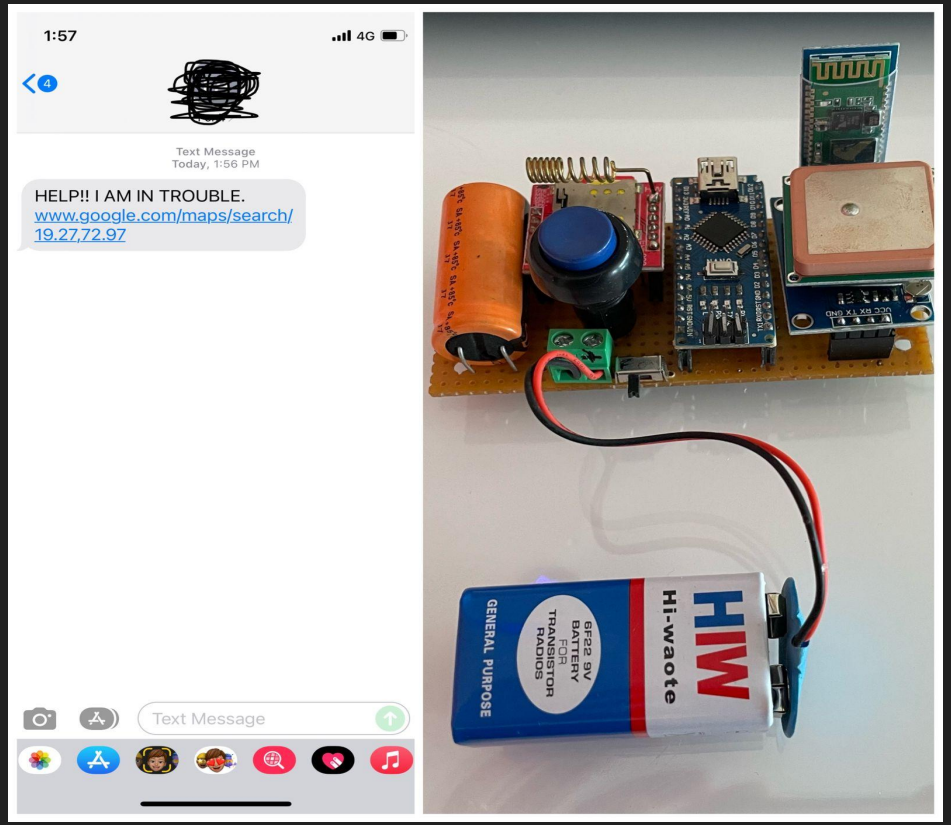
1:57
4G
4
Text Message
Today, 1:56 PM
HELP!! I AM IN TROUBLE.
www.google.com/maps/search/
19.27,72.97
Text Message
HIW
Hi-waote
6F22 9V
BATTERY
FOR
TRANSISTOR
RADIOS
GENERAL PURPOSE

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Feasibility

Checklist:

- ✓ Cross Platform Application
- ✓ Data Analysis
- ✓ IoT Safety Band
- ✓ Backend Support

Conclusion

- Our intentions
  - To make women movement safer and everybody else.
  - Maximizing the safety of women.

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Paper Publication

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